

Antecedents to Reverse Auction Use

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Antecedents to Reverse Auction Use

Abstract

Electronic reverse auctions (e-RA) are a significant development in the procurement arena. Their cost-reducing capabilities are considerable and as such, reverse auction use is expected to grow. To optimize use, sourcing managers need to match firm requirements to market characteristics and supplier capabilities through the application of optimal *sourcing strategies*. To date, explanations for the phenomenon of why sourcing managers decide to utilize e-RAs are incomplete. The authors rely upon strategic sourcing concepts coupled with theories of competition, goal-setting, leadership, referent-dependence theory, expectancy theory, and the theory of planned behavior to construct a conceptual model of antecedents to e-RA use. The model suggests significant long-term implications to buyers and third-party reverse auction service providers.

Key Words: reverse auction, procurement, sourcing strategy, purchasing, strategic sourcing, spend analysis, leadership, motivation, satisfaction, savings, buyer confidence, competition

On Friday, September 17, 2004, sportscasters likely uttered the phrase, “Going, going, gone!” as the legendary Barry Bonds of the San Francisco Giants hit a 392-foot solo shot over left-center field for his seven hundredth career home run. At the expense of the San Diego Padres, San Francisco won that night, as did one lucky fan. Steve Williams, the fan who caught the ball, subsequently put the ball up for sale through an electronic auction site, Overstock.com. This entrepreneurial move earned him \$804,129 in the sale. Placing 240 bids over ten days, fifty-seven bidders competed in Mr. Williams’ auction. Could the seller have possibly found a better means to connect with so many buyers? The power gained by the seller by connecting with multiple motivated buyers in a real-time, online bidding event was unmatched.

Now, turn the table. Consider a corporate buyer of large volumes of products or services looking for a supplier. This buyer can leverage the same online auction technology in reverse. Electronic reverse auctions (e-RA) link buyers and sellers in real time in an online, downward bidding event. In this online market, buyers post schedules of products or services and sellers bid to win the buyer’s business. Beall, Carter, Carter, Germer, Hendrick, Jap, Kaufmann, Maciejewski, Monczka, and Peterson (2003:7) defined e-RA as an “online, real-time dynamic auction between a buying organization and a group of pre-qualified suppliers who compete against each other to win the business to supply goods or services that have clearly defined specifications for design, quantity, quality, delivery, and related terms and conditions.” In many cases, the e-RA is replacing traditional paper-based or email-based requests for proposals (RFP) and subsequent face-to-face negotiations.

Reverse auctions offer a compelling case for their use. Savings range from 5-40 percent (Tully 2000), with typical gross savings of 15-20 percent (Cohn 2000)--a significant reduction in light of the fact that manufacturers typically spend 55 percent of their revenue on purchased

goods and services (Monczka, Trent and Handfield 2002). Presuming a 20 percent gross margin, every dollar of reduction in purchased materials and services costs translates directly to an increase of five dollars to top line sales, a fact increasingly appreciated by leading global corporations (Emiliani 2000).

However, cost cutting through e-RA sourcing is not without controversy. Many suppliers disfavor e-RAs not simply for the obvious price and margin-squeezing effect, but also for the perceived long-term negative impact to buyer-supplier relations (Jap 2003; Emiliani and Stec 2004). Smeltzer and Carr (2002) identified three threats to suppliers. First is the propensity to base purchase decisions solely on price. This essentially commoditizes a supplier's offering to something common across all suppliers. Second, a reverse auction may serve as a ploy for the buyer who does not intend to award business but instead seeks to garner market information and bolster its negotiating power. Third, the seller might get caught in the emotion of the competitive event and bid below cost (i.e. the desire to win the auction drives bidding decisions rather than the organization's cost structure), an outcome termed "the winner's curse" (Carter, Kaufmann, Beall, Carter, Hendrick and Petersen 2004; Sashi and O'Leary 2002).

Given suppliers' concerns for using e-RAs and the potential for strained supplier relationships, why do an estimated 56 percent of firms continue to use e-RAs (Reese and Baitler 2005)? That is, what factors influence reverse auction use? Furthermore, from a strategic point of view, when is it *appropriate* to use e-RAs? At present, few studies address antecedents to the adoption of business-to-business electronic markets (Beall et al. 2003; Joo and Kim 2004; Kaufmann and Carter 2004; Wagner and Schwab 2004). Studies that have been conducted have: (1) focused on the appropriateness of using e-RAs based on four different categories of spend, (2) examined e-RA practices and projected future use, and (3) examined environmental, market

technological, and organizational context variables. However, many questions remain. For example, while researchers have addressed the issue of what categories of spend should be sourced through e-RAs, the question of how e-RAs potentially contribute to competitive advantage has not been addressed. Furthermore, organizational factors and buyer cognition are likely to play a role in whether or not an e-RA is executed, yet have been largely ignored.

The purposes of this research are twofold. First, a theoretically grounded approach is used to provide guidance to how and under what conditions e-RAs can serve as an advantage-producing resource. This discussion has broad implications for both future theory development and practice. Second, a model depicting factors that contribute to e-RA use is offered (Figure 1). This model both integrates and extends the works of previous researchers. A key contribution is the presentation of expected savings as the culmination of the e-RA quantitative and qualitative decision support process and a critical factor determining e-RA use.

The remainder of this paper is organized as follows. The existing research stream on reverse auction use is discussed. Next, we draw on resource-advantage theory as a theoretical foundation to explicate how and under what conditions e-RAs can serve as advantage-producing resources. Theoretical and practical implications are offered and we then close with recommendations for future research.

----Insert Figure 1 about here---

THEORETICAL FOUNDATION AND LITERATURE REVIEW

The body of literature on reverse auctions is still in its infancy (Arnold, Karner and Schnabel 2005; Carter et al. 2004; Wagner and Schwab 2004) and research specific to the factors that influence *reverse auction use* is sparse at best (Joo and Kim 2004). Furthermore, reverse auctions have not been explicitly grounded in theory as a potential source of competitive

advantage. In the remainder of this section, we address the question of: How can reverse auctions be used in a manner that will contribute to the firm's ability to achieve a competitive advantage? Resource-advantage theory serves as the theoretical foundation to address this question. Following this discussion, we review four studies that serve as a foundation for research on antecedents of adoption of business-to-business electronic markets.

Resource-Advantage Theory

It is argued here that under certain conditions, e-RAs may help enable an organization to achieve a positional advantage in the marketplace. Thus, to ground e-RAs in strategy theory, we rely on resource-advantage theory as a theoretical foundation (Hunt and Morgan 1995; Hunt 1997; Hunt 2000). Resource-advantage theory is a general theory of competition that draws on a number of research traditions. In short, resource-advantage theory posits that a firm's ability to achieve a position of competitive advantage and superior financial performance stems from its relative advantage in resources. That is, firms with a comparative (dis)advantage in resources will likely achieve a marketplace position of competitive (dis)advantage resulting in (inferior) superior financial performance (Hunt and Morgan 1995; Hunt and Derozier 2004).

Drawing on the resource-based view, resources are defined as tangible and intangible entities that allow firms to efficiently and/or effectively produce market offerings that are valued by some market segment(s) (Hunt and Morgan 1995; Hunt 2000; Hunt and Derozier 2004). Resources do not necessarily need to be *owned* by the firm, simply *available* to the firm. Resource-advantage theory broadly classifies resources as financial, physical, legal, human, organizational, informational, and relational (Morgan and Hunt, 1999). Different organizations will have varying assortments of resources and, furthermore, each organization will *combine*

resources differently. Thus, firms are likely to create idiosyncratic resources that may not easily transfer across organizations.

Following resource-advantage theory, firms are able to gain a position of competitive advantage by providing: (1) parity value at a lower relative resources cost, (2) superior value at parity costs, or (3) superior value at lower resource costs. Positions of competitive disadvantage arise when the relative resource costs are greater than the perceived resource-produced value (Hunt and Morgan 1997). The two indeterminate positions are (1) lower value at a lower cost and (2) higher value at a higher cost (see Figure 2).

Resource-Advantage Theory and Reverse Auctions

When can RAs serve as an advantage producing resource? If we focus our attention on “relative resource costs,” then it follows that an obvious role of e-RAs is to reduce material and service costs. Furthermore, e-RAs provide additional opportunities to reduce “human” resource costs by reducing the number of buyers necessary to purchase products and services at the same level of spend. That is, e-RAs allow organizations to be more efficient (Carbone 2005; Arnold et al. 2005).

For resource-advantage theory, relative resource costs are only one side of the equation. What is often overlooked is the other side, relative resource-produced *value* (i.e., effectiveness). e-RAs play a role in creating value because they serve as “a time-saving tool that lets them [buyers] focus on supplier quality issues, vendor-managed inventory programs, and contract negotiations” (Carbone 2005:43). Thus, the purchasing function becomes more strategic in nature and potentially enhances the organizations ability to be both more efficient and more effective.

---Insert Figure 2 about here---

Extant Reverse-Auction Use Literature

As previously stated, extant literature on reverse auctions and, more specifically, reverse auction use is still emerging. Four key articles serve as a foundation for research concerning reverse auction use. Joo and Kim (2004) find that external pressure, such as competition and firm size, directly affected e-marketplace adoption--an insightful analysis highly relevant to an individual sourcing manager's decision to use an e-RA. Kaufmann and Carter (2004) published the most recent analysis of e-RA antecedents via case study wherein several factors contributed to determining the mode of auction negotiation. Factors included: 1) specifiability, 2) attractiveness of the auction, 3) degree of rivalry among suppliers, 4) trust in the new process/system, 5) and ethics.

Another influential e-RA pioneer, The Center For Advanced Purchasing Studies (CAPS), a program jointly sponsored by Arizona State University and ISM, conducted case study interviews with seventeen reverse auction providers, sixteen buyers, fifteen suppliers, and nine non-users (Beall et al. 2003). The researchers suggested that a *sourcing strategy* determines whether a reverse auction should be used. From the widely used strategic sourcing matrix (Kraljic 1983), Beall, et al. (2003) identified three of the four categories of spend as eligible for reverse auction sourcing: “*non-critical*,” “*leverage*,” and “*bottleneck*.” Only “*strategic*” spend was excluded. Finally, Wagner and Schwab (2004) found that available time-to-auction, competition, and specifiability increased the probability of e-RA success.

A MODEL OF REVERSE AUCTION USE

The proposed model integrates both the macro-level phenomenon and the buyer's decision to use a reverse auction for sourcing specific requirements based on the following arguments. First, a reverse auction is an appropriate sourcing methodology in certain

circumstances, but inappropriate in others. The *sourcing strategy* determines the appropriateness of e-RA use. Second, two underlying behavioral phenomena explain the buyer's tendency to gravitate toward e-RAs. These include the effect of intra-firm *leadership* and the buyers' need for pricing *confidence*, a concept that will later be explained in detail. Third, two key variables moderate the effect of the *sourcing strategy* and the sourcing professional's *motivation* on the *decision to use an e-RA*. Moderators include the *auction savings* (product/service cost savings less auction cost) and *prior e-RA sourcing satisfaction*. The following sections provide a detailed explanation for our model.

Decision to Source via e-RA

The sourcing manager's strategic and deliberate decision to procure products or services by means of a reverse auction constitutes the firm's *decision to source via reverse auction*. The sourcing manager considers the advantages, disadvantages, opportunities and risks of e-RA sourcing as applied to each specific procurement action. This is a "go/no-go" decision; either the e-RA will be used or it will not. The decision to source via e-RA includes any use of e-RA, whether the e-RA comprises the entire sourcing process (e.g. "pure electronic auctions") or a fraction of the sourcing process where the e-RA complements other traditional sourcing processes (e.g. as face-to-face negotiations) (Arnold et al. 2005; Kaufmann and Carter 2004).

Sourcing Strategy

Extant purchasing literature presents a complex picture of procurement *sourcing strategy*. In general, sourcing strategy consists of a comprehensive plan that determines what to purchase, from whom, how to purchase, and when to purchase. It also includes an assessment of elements such as the *category of spend*, *competition*, the *nature of demand*, and *selection criteria* (Kraljic 1983). Figure 3 displays how the sourcing manager's decision is operationally derived through

the sourcing process via the task relationships (e.g., start-to-start, start-to-finish) of these and other elements of a sourcing strategy. The firm's deliberate sourcing strategy determines the appropriateness of a reverse auction as an appropriate and effective means of sourcing the specific products or services. Comprehension of the effect of sourcing strategy on a sourcing professional's choice of sourcing media requires dissembling the following components of the strategy process.

--Insert Figure 3 about here --

Nature of Demand

Reverse auctions require thorough and unambiguous identification of all requirements for the product or service, a characteristic termed "specifiability" by Kaufmann and Carter (2004). The buyer must clearly express the need and each supplier's interpretation of the need must match that of the buyer. Achieving optimal specifiability requires that the buyer fully understand the internal customer's purchasing requirement, usually embodied by key characteristics of the product or service such as volume, where and when, purpose, physical characteristics, transportation requirements, storage details, the major cost drivers of its production, manufacturing techniques, specialized labor requirements, service frequency, quality standards, inspection requirements, required delivery dates, performance metrics including minimum performance thresholds, production lead times, and contribution to profitability. After formulating optimal specifiability, the buyer must disseminate the information to internal stakeholders and technical evaluators as well as strategy decision makers. This required common understanding of work enables the "apples-to-apples" comparison of bid prices. Therefore, it is posited:

P1: The greater the specifiability, the greater the propensity for e-RA use.

Category of Spend

Buyers use market intelligence and total-cost-of-ownership analysis to populate the strategic sourcing matrix (Kraljic 1983). This matrix evaluates products or services in terms of their criticality and supply difficulty. This matrix appears in many forms. GlaxoSmithKline (GSK), a leading pharmaceutical manufacturer, uses a modified strategic sourcing matrix assessing spend value versus risk (Beall et al. 2003), as thoroughly described in *The Purchasing Handbook* (Cavinato and Kauffman 2000). The strategic sourcing matrix found in Figure 4 categorizes spending as one of four types: *non-critical, leverage, bottleneck, or strategic*. Each of these buckets carries associated supplier evaluation, contracting, and post-award management strategies. For example, office supplies are standard, non-critical items in a highly competitive market. Thus, the buyer would want to select the supplier based on price, use a short-term contract, re-compete often, and not bother with cumbersome inspections.

However, in many cases, non-price factors may outweigh price considerations. e-RAs now have the flexibility to extend beyond its traditional price selection focus (Schrader, Schrader and Eller 2004) and integrate with other aspects of the purchasing process. For example, when purchasing leverage and bottleneck categories of spend, e-RAs may be used to determine price while other terms of the agreement are determined in face-to-face negotiations. In this “auction-integrated sourcing process” (Kaufmann and Carter 2004), the buyer uses the e-RA to determine the price, but is able to consider other non-price factors such as technical capabilities, past performance, experience, and proposal risk. Thus e-RAs are not prohibited for sourcing arrangements requiring closer relations with suppliers (e.g. bottleneck spend) and, therefore, e-RA use and supplier collaboration are not mutually exclusive (Hartley, Lange and Hong 2004).

Critical items and services with a complex supply market characterize the strategic category of spend. The general consensus is that buyers should not source strategic spend via e-RAs (Kaufmann and Carter 2004). Agreements with suppliers of *strategic* items and services are typically manifested in partnerships, long-term contracts, and strategic alliances. Given the nature of such relationships, the risks associated with e-RA use and harming or losing such relationships outweigh to cost-related benefits.

Therefore, we posit:

P2_a: Leverage and non-critical requirements are more likely to contribute to the decision to use reverse auctions than bottleneck requirements.

P2_b: Strategic requirements are negatively related to the decision to source via e-RA.

--Insert Figure 4 about here--

Competition

One of the key drivers of whether or not an organization should use a reverse auction is based on the level of supplier competition for an organization's business. That is, there must be a sufficient number of suppliers willing to compete in the reverse auction in order to make it an effective element of one's strategy (Beall et al. 2003; Kaufmann and Carter 2004). Based on previous research, firms that seek to increase efficiency and/or effectiveness through the use of e-RAs should consider the dollar volume of the auction as well as the (excess) inventory and production capabilities of suppliers (Kaufmann and Carter 2004; Smeltzer and Carr 2003). That is, firms that have excess inventory to "unload" and/or have excess capacity are more likely to compete aggressively in e-RAs. Competition among suppliers should influence a buyer's decision to use e-RAs. Stated formally:

P3: As supplier competition increases, a buyer is more likely to use e-RAs.

Human Factors

The decision to use e-RAs is made by individual decision-makers, often buyers. Thus, an integrative model should consider not only firm strategy, but also factors that influence the individual's decision to use e-RAs. Specifically, we focus on three key factors: leadership emphasis, buyer confidence, and buyer motivation.

Leadership Emphasis

Leadership emphasis is viewed as an important influence on the actions of subordinates. In the context of e-RAs, leadership emphasis is defined as the extent that executive decision makers support and promote the use of reverse auctions in sourcing requirements. This definition draws on House and Mitchell's 1974 work that explains how influencing behaviors demonstrated by leaders affect a sourcing manager's motivations. Influencing behaviors are characterized as directive, supportive, participative, or achievement-oriented. The leader clarifies the subordinate's behavior (path) that will lead to the desired rewards (goals) and reinforces it with demonstrative behavior. In the context of e-RAs, leadership behaviors include: 1) setting aggressive annual and quarterly dollar-value goals or percentage-of-spend goals for e-RA sourcing, 2) apportioning funds and establishing a contract with an e-RA service provider for auctioning services, the auctioning software, or auctioning consulting services (often termed market making), 3) staffing an e-sourcing manager to coordinate and orchestrate bidding events and to train suppliers and internal customers, 4) integrating e-RAs into the firm's documented procurement processes and project plans, and 5) financially or otherwise rewarding those sourcing managers who meet or exceed e-RA sourcing objectives. Thus "if formal leaders are committed to the e-sourcing ... process, there is a greater likelihood of rapid adoption and full utilization" (Flynn 2004:6). Commonly, such leadership emphasis comes from senior positions

such as the firm's Chief Procurement Officer or Director of Supply Chain Management. This inspires the following proposition:

P4: Leadership emphasis to source via e-RA will positively influence the sourcing professional's motivation to source via e-RA.

Buyer Confidence

The second human factor attracting a sourcing professional to reverse auctions relates to the certainty of true market value. Sourcing professionals pursue the satisfaction of two fundamental needs: (1) certainty of best value and (2) certainty of supplier reliability. We label "certainty of best value" as *buyer confidence*. "A buyer needs to convince the financial management that prices are the best possible, whilst simultaneously demonstrating to the manufacturing team that quality and delivery are not being compromised" (Griffiths 2003:190). In addition to price, purchasing managers rely on assessed value in making purchase decisions (Anderson, Thomson and Wynstra, 2000). "Value in business markets is the worth in monetary terms of the economic, technical, service, and social benefits a customer firm receives in exchange for the price it pays for a market offering" (Anderson and Narus 1988: 54). Assessed value considers competing suppliers' offering and prices. Here, $(Value_s - Price_s) > (Value_a - Price_a)$, where s represents the value and price of the supplier, and a represents the value and price of the next best alternative. This difference equates to the buyer's incentive to purchase. This assessment of value is based on reference-dependent theory, "the notion that individuals define alternatives that they consider as gains and losses relative to a reference point, rather than in an absolute sense" (Anderson et al. 2000: 311). Importantly, buyers typically struggle to monetarily quantify value, and thus rely more heavily on price comparisons (Anderson et al. 2000). Hence, absent sufficient competitive quotes as a basis of price comparison, gaining *buyer confidence* is difficult. Compounding the aforementioned dilemma, buyers are typically risk

averse (Wilson 1971), preferring “an alternative whose outcome is known with certainty over one having an equal or more favorable expected value but whose outcomes are probabilistic” (Puto, Patton and King, 1985:90). Given that many purchasing decisions are surrounded by uncertainty and the risk of substantial consequences (Puto et al. 1985), the buyer is in a peculiar fix. In holding with these theories, we hypothesize:

P5: There will be a positive relationship between *buyer confidence* and buyer motivation.

Buyer Motivation

Buyer motivation, in this context, is the degree to which the buyer is impelled to use e-RAs. For purchasing organizations that set and communicate specific cost savings goals at the beginning of an evaluation period, sourcing managers will internalize these goals as their own, and then act toward their achievement. The rationale for this assumption derives from Locke and Latham’s (1990) goal setting theory that established that an individual’s personal goals are an immediate regulator of his or her actions. Furthermore, Bandura and Wood (1989) found that externally set performance standards influenced individual’s self-set goals such that more difficult standards yielded higher self-set goals. Hence:

P6: Buyer motivation will have a positive effect on the decision to use e-RAs.

Prior e-RA Sourcing Satisfaction

Extant research has shown significant relationships between past behavior and future behavior (Albarracin and Wyer 2000). This relationship is mediated by outcome-specific cognitions, attitudes, and intentions. Once a behavior is engaged, people assess consequences then form attitudes that influence future behavior. These findings support Ajzen’s (1991) theory of planned behavior. Therein, behavioral beliefs (e.g. consequences), normative beliefs (subjective norms) and control beliefs (facilitators or impediments to performance) are

considered by people contemplating a course of action. Furthermore, Fazio and Zanna (1978:228) found that people “who formed their attitudes through direct experience held those attitudes more confidently and behaved more consistently with those attitudes than did [people] who formed their attitudes through indirect experience.” These links from social psychology are evidenced in consumer behavior such as repeat purchasing and brand loyalty (Oliver 1997). These basic cognitive processes likely affect sourcing managers’ decisions.

Following previous research, dissatisfaction with the results of prior bidding events will likely lead to discontinued e-RA use (Emiliani 2005). Sources of dissatisfaction may include: 1) savings lower than expectations (Kaufmann and Carter 2004), 2) selecting an unqualified or underperforming supplier, 3) bid event technical difficulties, and 4) issues related to auctioning items or services not conducive to e-RAs. As a case-in-point, research by Beall et al. (2003) interviewed e-RA non-users for their rationale. They identified one buyer who opted not to use e-RAs because the e-RA did not yield savings greater than that achieved using traditional negotiation processes.

The sourcing manager’s prior experience with e-RA sourcing will likely influence his or her decision to employ e-RAs in the future in two ways. First, satisfaction may have a direct effect. That is, if a sourcing manager is satisfied (dissatisfied) with previous e-RA sourcing, then he/she is more (less) likely to use e-RAs in the future. Second, prior satisfaction may also moderate the relationships between the hypothesized antecedents of e-RA use and the decision to use e-RAs. For example, if a sourcing manager is dissatisfied with previous electronic auctions, that dissatisfaction may temper the effect of sourcing strategy on the decision to source through e-RAs. Stated formally:

P7: Prior e-RA sourcing satisfaction is positively related to the decision to source via e-RA.

P8: Prior e-RA sourcing satisfaction will moderate the relationship between antecedents and the decision to source via e-RA.

Expected Savings

The pre-auction expected net cost savings of sourcing via a reverse auction represents the *expected savings* construct. Expected savings is calculated as the estimated savings from the auction minus the cost of conducting the e-RA. In most cases, the market maker's (auctioneer service provider) auction fee will determine the cost of the e-RA.

Business case analyses and quantitative evaluations of alternatives (Brannock 2004) guide many business decisions involving financial effects. This calculated decision support is explained by Vroom's expectancy theory of motivation (Vroom 1964). Vroom's valence - instrumentality - expectancy (VIE) model relates orientations toward outcomes (valence), the relationship of one outcome to another (instrumentality, also sometimes interpreted as the probability of an outcome), and the subjective assessment of the probability of an effort (expectancy). In the context of a business decision-maker deciding between using e-RA or another procurement method, a decision-maker balances his/her attitude toward the outcomes of each method (valence), how the outcome of each method relates to other possible outcomes in terms of which will more successfully fulfill company strategy (instrumentality), and the assessment of the outcome of each method related to the effort involved (expectancy). Though difficulties have plagued its testing, Vroom's VIE model has been consistently supported in terms of its importance to cognitive functions (Moorhead and Griffin, 1995; Van Eerde and Thierry 1996).

As with the previous construct, it is posited that expected savings will have both direct and moderating effects on the decision to source via e-RAs. As expected savings increases, the

buyer is more likely to source via reverse auctions. Furthermore, the expected savings may moderate relationships between antecedents and the decision to source via e-RAs. For instance, if the buyer motivation is low and if expected savings are high, then the influence of buyer motivation on the decision to source with e-RAs may be moderated. Stated formally,

P9: Expected savings is positively related to the decision to source via e-RA.

P10: Expected savings will moderate relationships between antecedents and the decision to source via e-RA.

IMPLICATIONS

This set of ten propositions further explains the phenomenon of e-RA utilization in procurement. While several studies have documented and empirically supported antecedents, we provide a more complete picture of e-RA utilization by integrating and extending previous research. Our integrated model is offered to the practitioner and researcher communities as a modest enhancement to the e-RA body of knowledge, and hopefully will lead to improved insights in both milieus.

For Practitioners

The CAPS Research case study documented that e-RA use will continue to expand ten to fifteen percent per year; furthermore, large firms like Volkswagen and the METRO Group have implemented procurement philosophies that render all purchases subject to a reverse auction (Beall et al. 2003). Approximately 56 percent of large companies use reverse auctions (Reese and Baitler 2005) but source an average of only five percent of spends through them.

The continued demand for reverse auction sourcing creates an imperative to develop guidance for buyers. The model presented here fills a void by integrating and extending existing research. For managers, the model identifies factors that influence a buyer's decision to use e-RAs. Therefore, if a manager wants to promote the use of e-RAs, the model suggests that

elements of the sourcing strategy as well as the goals and objectives (and rewards) for buyers must be aligned such that e-RAs will be utilized. Furthermore, managers must also recognize that individual factors (experience) may influence e-RA use. Thus, if e-RAs are viewed as a potential advantage-producing resource, then it will be important to select buyers that both have an understanding of how to value the savings of an auction and have had positive experiences with e-RAs.

With this model's prescription and explanation of buyer firm behavior, perhaps an understanding between buyers and sellers will prevail to reduce the controversy associated with their usage (Emiliani & Stec 2002; Emiliani & Stec 2004; Hartley et al. 2004; Daly and Nath 2004). Suppliers who accept the model will understand buyer motivations and decisions.

Finally, by understanding circumstances amenable to reverse auctions, this model may enhance market maker (third-party auctioneer) probability for success. In order to combat the trend of diminishing fees, e-RA service providers should market their tool to other categories of spend such as leverage and bottleneck. Additionally, e-RA service providers should continue to enhance new tool capabilities that facilitate dynamic trade-offs often required by leverage and bottleneck spend. Reverse auction service providers should simplify the capability in their e-RA software that enables multi-attribute bidding (Bichler and Kalagnanam 2005), the simultaneous bidding of price and non-price factors such as increased performance above minimum required thresholds. For example, if the buyer wants one hundred widgets delivered on time at least ninety percent of the time, an auction could be structured to allow the supplier to bid not only the price, but also the performance levels above ninety percent. The technology currently exists in e-RA software; however, the current complexity of multi-attribute auctions renders them beyond practicality for many buyers and suppliers (Kaufmann and Carter, 2004).

For Researchers

Emiliani (2004:71) called for “additional research to improve practitioner and academic knowledge of the domain of successful application for online reverse auctions.” We have taken the first step toward facilitating such knowledge discovery by proposing a thoroughly grounded, integrated theory of e-RA use. Theory can provide laws that describe the world as we see it, it can provide sudden enlightenment, and it can function as an account of a social process -- but the best theories do all three to some extent (DiMaggio 1995). By grounding its principles in the sourcing literature, competition theory, and deeply into multiple behavioral theories, our theory represents an attempt to bridge all three of these areas.

Additionally, the presented theory is of quality poised for testing. It encompasses the “what,” “how,” “why,” “who” and “when” pertaining to e-RA use (Whetten 1989; Sutton and Staw 1995). Further, the model clearly depicts its contribution (“what’s new?”), is supported by evidence and underlying theory (“why so?”), and presents implications to researchers and practitioners (“so what?”) (Whetten 1989). In short, it provides a parsimonious explanation of e-RA use.

Finally, the model and role of reverse auctions is grounded in the strategy literature using resource-advantage theory as the foundation. For procurement to become more strategic, it must demonstrate the ability to contribute to a firm’s efficiency and/or effectiveness. That is, the ability for procurement to serve the organization as an advantage-producing resource must be demonstrated. As e-RAs are used in a manner to improve efficiency (e.g. reduce staff requirements) and/or effectiveness (e.g. allow buyers to focus on more strategic issues), the role of procurement in strategy development and execution will be enhanced.

Limitations and Future Research

Obviously one of the limitations is that the model is conceptual and has not been empirically tested; therefore, future research should include an empirical test of the model. A second limitation is that we have primarily focused on e-RA use rather than factors that lead to successful e-RAs under various internal procurement conditions and external market circumstances. For example, whether e-RAs yield equivalent utility under inflationary economies is undetermined. A recent conversation with one e-RA third-party service provider suggests that during inflationary cycles, e-RA use has and will likely persist as an effective cost avoidance mechanism. Nonetheless, contingency approaches to e-RA use should be empirically explored.

Additionally, future research should elaborate the validity of a system-wide view of expected savings incorporating procurement strategy, relational marketing, and other important aspects of business decision-making. Reverse auction critics (Emiliani and Stec 2002) have proposed that the fundamental explanation for e-RA use is attributed to buyer opportunism, or self-interest-seeking with guile (Williamson 1981). The research finding that e-RAs increase suppliers' suspicion of buyer opportunism (Jap 2003) confirms supplier's unrest with the hyper-competitive arena created by the e-RA, but does not support any claim to the buyer's actual motivations. While the argument regarding buyer opportunism holds some merit and should be tested for extension to this integrated model, empirical evidence such as improved supplier relations (Carter et al. 2004) and the possibility of supplier collaboration with e-RA use (Hartley et al. 2004) suggests otherwise. Notwithstanding, rival models have remained silent to the buyer's fundamental task of matching firm needs with supply base capability at the lowest total costs in accordance with the optimal sourcing strategy, though Arnold et al. (2005) do address the topic from an internal-to-the-firm process perspective.

Conclusion

In summary, the e-RA tool development and employment comprises a significant advancement in the realm of corporate procurement. Its effects far supersede those of electronic RFx and catalog applications. Its extraordinary ability to leverage competition and yield substantial returns assures the continued growth of e-RA use. Buyers, suppliers, and third-party auctioneers must act and react to remain competitive. The proposed model aids sourcing managers to optimize e-RA usage to deliver competitive advantage. The significant effects that e-RAs deliver have entrenched them as a permanent sourcing tool, and we will continue to hear buyers utter, "going, going, gone!"

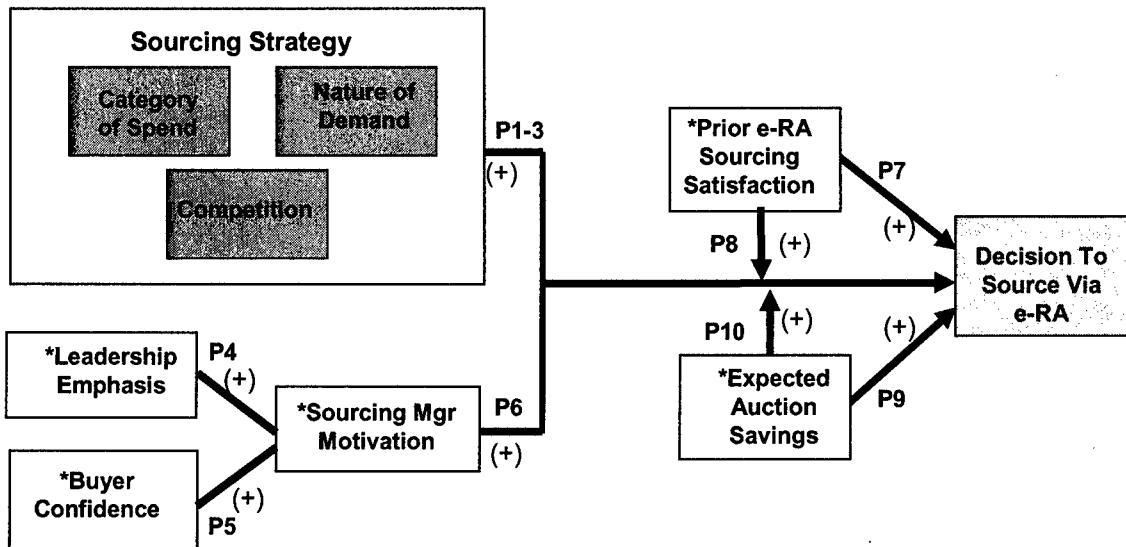
Figure 1**A Model of Antecedents to Reverse Auction Use**

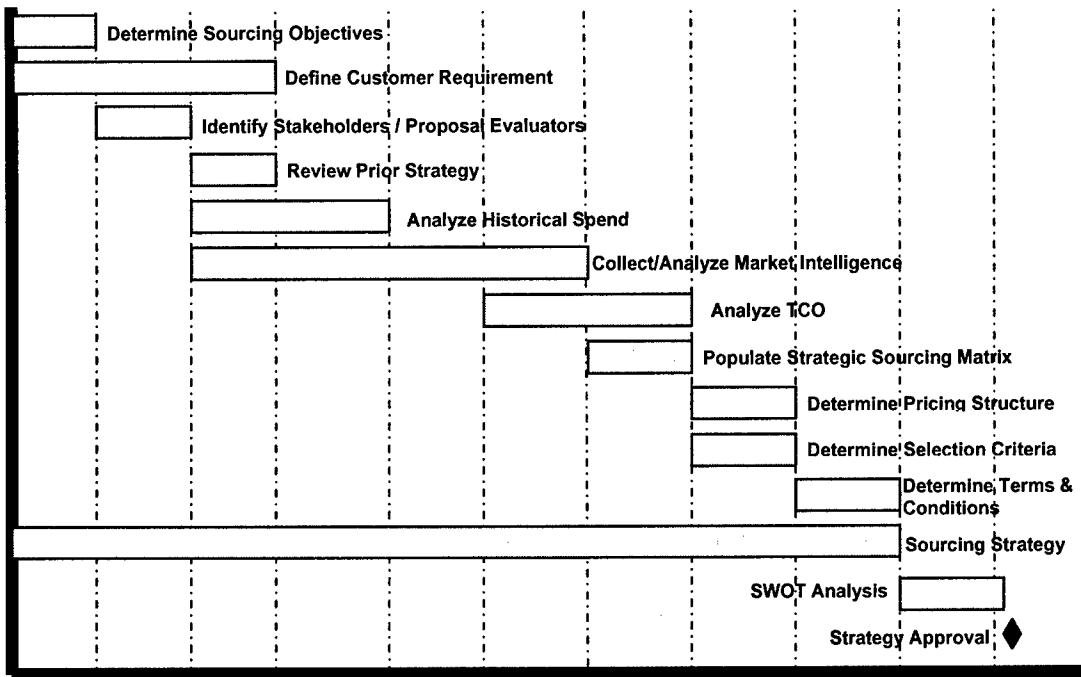
Figure 2**Competitive Position Matrix^a**

		Relative Resource-Produced Value		
		Lower	Parity	Superior
Relative Resource Costs	Lower	1 Indeterminate Position	2 Competitive Advantage	3 Competitive Advantage
	Parity	4 Competitive Disadvantage	5 Parity Position	6 Competitive Advantage
	Higher	7 Competitive Disadvantage	8 Competitive Disadvantage	9 Indeterminate Position

^aRead: The marketplace position of competitive advantage identified as Cell 3 results from the firm, relative to its competitors, having a resource assortment that enables it to produce an offering for some market segment(s) that (a) is perceived to be of superior value and (b) is produced at lower costs.

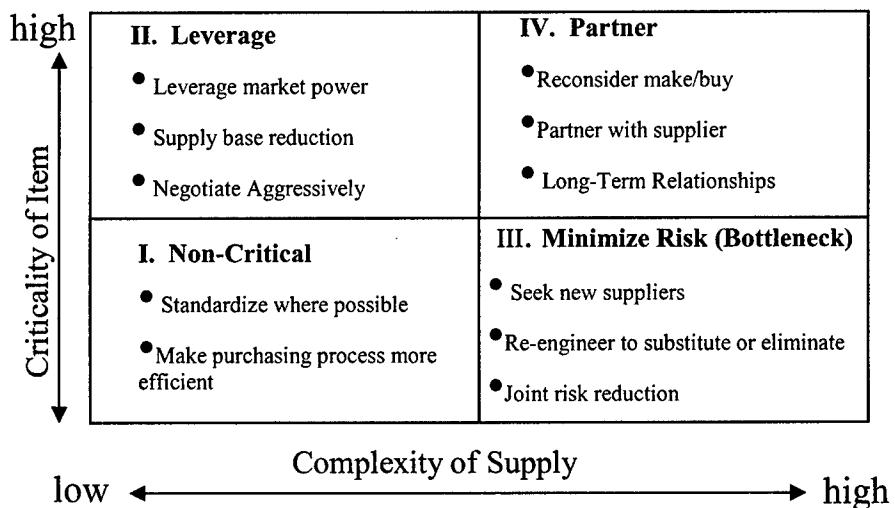
Source: Hunt and Morgan (1997).

Figure 3
Sourcing Strategy Process



(Modified and Extended From Monczka et al. 2002)

Figure 4
Strategic Sourcing Matrix



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